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A NEW SPECIES OF *FERALIA*

FROM SANTA CATALINA ISLAND OF CALIFORNIA, WITH NOTES ON THE IMMATURE STAGES OF *FERALIA FEBRULIS* GROTE (NOCTUIDAE:CUCULLIINAE)

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While in the United States National Museum, Washington, D. C., in January, 1964, it was the author's pleasure to discover an apparently new species, or subspecies of *Feralia* that was closely allied to *februalis* Grote. Upon further studies, in particular genitalia mounts, it was found that *meadowsi* Buckett, new species was distinct anatomically as well as by maculation from *februalis*. The specimens of this new species were all collected during the short interval between 1930 through 1933 by the amateur Lepidopterist, Schoolteacher, Mr. Don C. Meadows.

The Los Angeles Times Sunday Magazine for 26 February 1933, pg. 16, states, "For five years Master of Science Don C. Meadows, moth-man of Catalina Island, has been studying 'fly-by-nights,' and he has captured 400 different species of moths, many of which are newer to entomology than the neutron is to physics." Even though the specimens are labeled "Avalon," the article further states "Prof. Meadows sets the trap in canyons back of Avalon . . ." This statements leads one to infer that it is quite possible that *meadowsi* may have been collected in mountainous canyons of the island.

Judging by its affinity to *februalis*, one wouldn't expect *meadowsi* to be an unusually rare moth during the early part of the year. Its scarcity in collections is probably due to the lack of collecting on the Channel Islands. *F. februalis* is not a species which flies great distances, and most ilkely *meadowsi* would exhibit a similar habit. Santa Catalina is over 20 miles from the mainland, and it is highly unlikely that *februalis* and *meadowsi* have come in contact with one another for sometime by natural means, yet the two species are obviously closely related. I take great pleasure in naming this species after the ardent "moth-man of Catalina Island," Mr. Don C. Meadows.

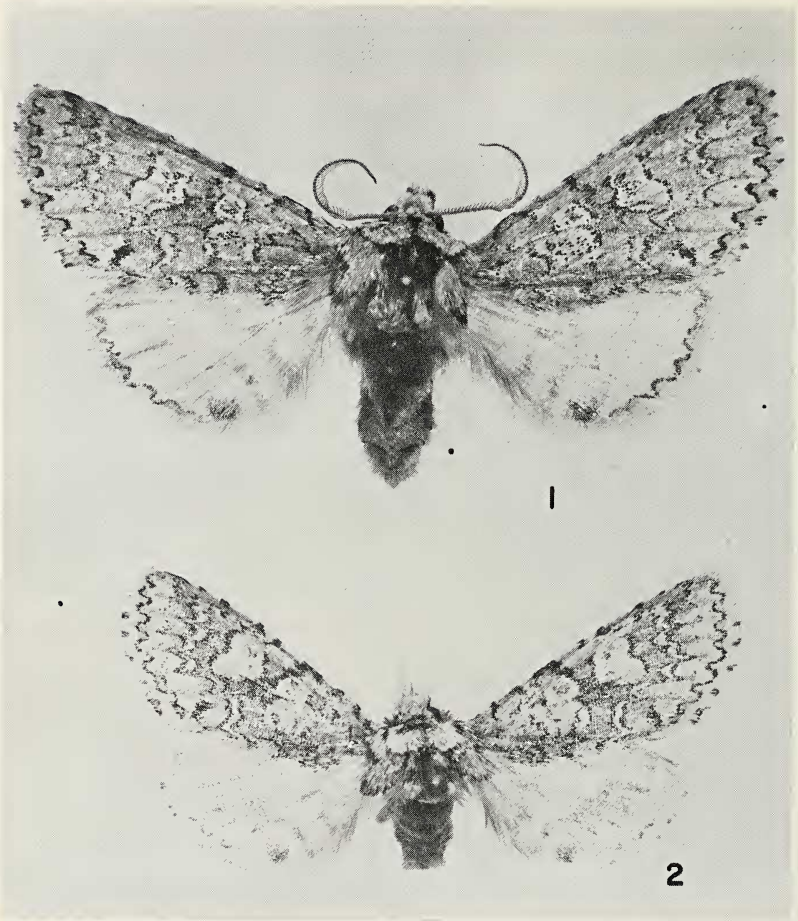


Fig. 1. Holotype male, *Feralia meadowsi* J. S. Buckett. Avalon Club House, Santa Catalina Island, California, 23 February 1933 (D. C. Meadows).

Fig. 2. Allotype female, *F. meadowsi*. Same locality and collector as holotype, 10 February 1932, Bauer-Buckett slide No. 67D17-53 (in U.S.N.M.).

Feralia meadowsi J. S. Buckett, new species

Male: Ground color of primaries dorsally pale green (Specimen compared to Reinhold Color Atlas, pl. 27 A3); secondaries dorsally with black dots at anal angle. Head with vertex clothed in whitish and pale green dentate scales and hairs; frons clothed dorsally in short black simple scales, medially clothed as in

Fig. 3. *Feralia februalis* Grote, male. Santa Rosa, Sonoma County, California, 14 December 1954 (J. S. Buckett). This is the typical *februalis* which expresses very little transverse blackish coloration of the primaries.

Fig. 4. *F. februalis*, male, illustrating slight transverse blackish coloration. Inverness, Marin County, California, 31 January 1964 (J. S. Buckett & M. R. Gardner).

vertex, cuticula externally with minute reticulations, otherwise smoothly rounded; maxillary palpi exterolaterally black, ventrally clothed in whitish and brown flattened hairs, terminal segment greatly reduced; antennae bipectinate, each bipectination bearing ventrally directed ciliations, becoming setose apically; compound eyes moderately lashed with elongate brownish hairs.

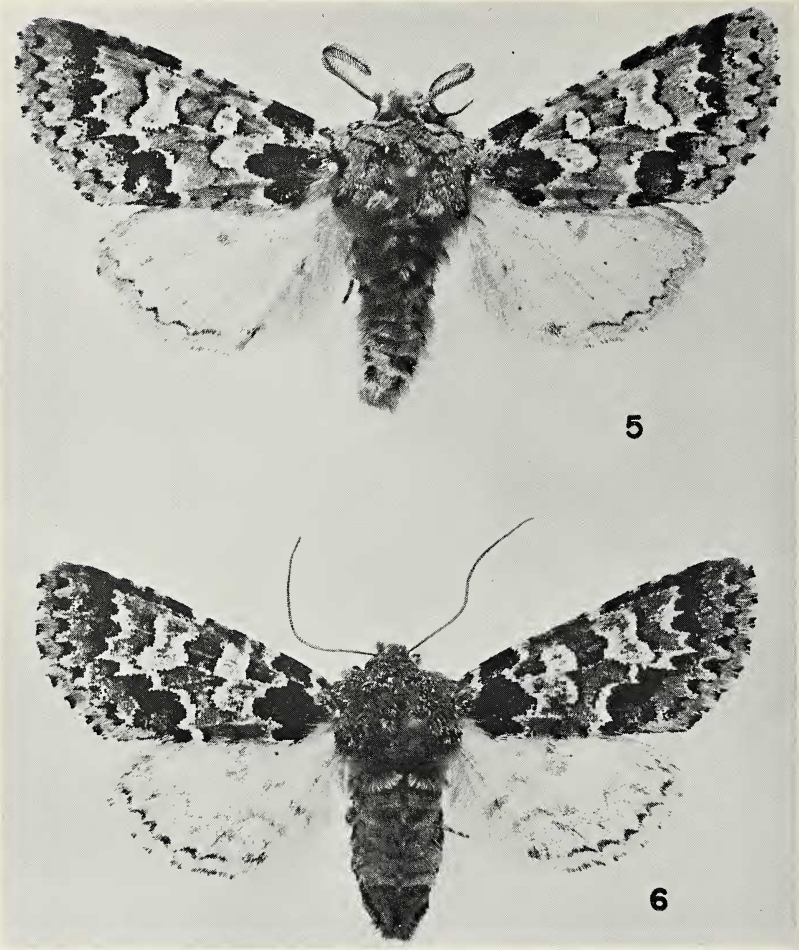


Fig. 5. *F. februalis,* male, illustrating an extreme amount of transverse blackish coloration. Middletown, Lake County, California, 12 February 1955 (W. R. Bauer & J. S. Buckett).

Fig. 6. *F. februalis,* female, illustrating extreme transverse blackish coloration, as well as an olive ground color of primaries. Cobb Mountain, Lake County, California, 7 March 1959 (W. R. Bauer & J. S. Buckett).

Thorax dorsally with divided collar basally, with weak black dash, medially pale green, apically white tipped; tegulae with anterior-most portion clothed in jet-black dentate scales; inner, posterior and exterior margins of tegulae bound subterminally in black, terminally white; disc clothed in pale green, white and black dentate scales; ventrally clothed in blackish simple hairs

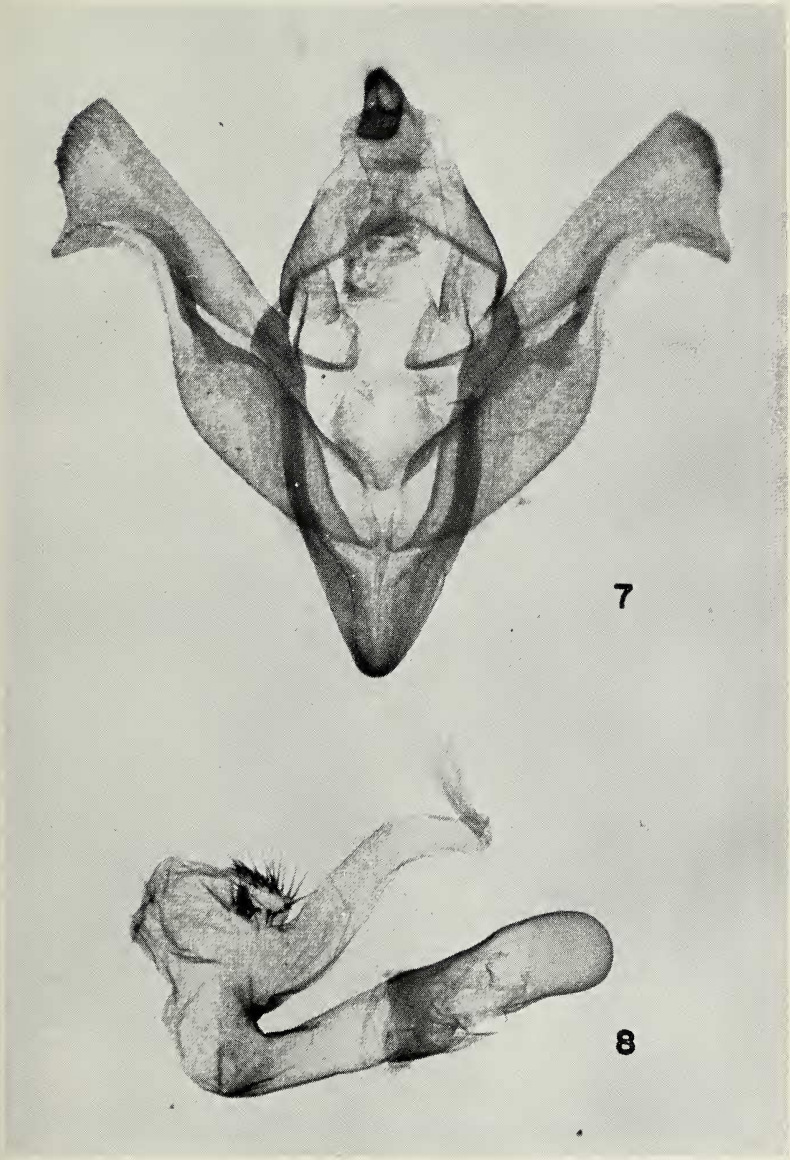
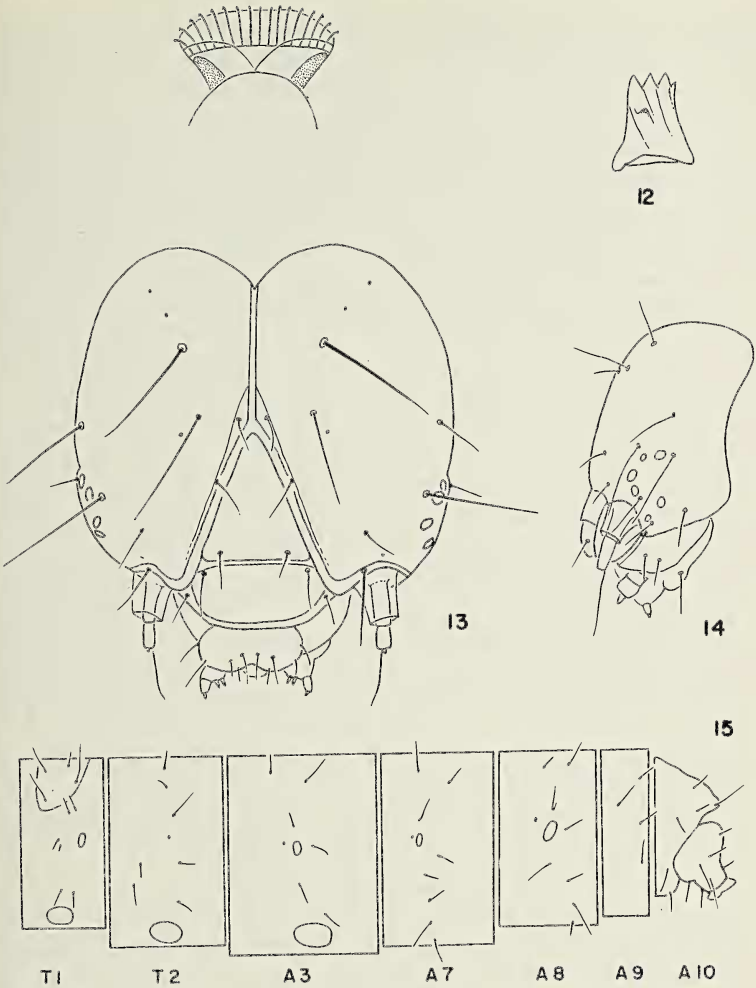


Fig. 7. *F. meadowsi,* male genitalia minus aedeagus. Avalon, Santa Catalina Island, California, 12 November 1931 (D. C. Meadows), Bauer-Buckett slide No. 67C31-21 (in U.S.N.M.).

Fig. 8. *F. meadowsi,* aedeagus. Data same as for fig. 7.

Fig. 9. *F. februalis*, male genitalia minus aedeagus. Inverness, Marin County, California, 31 January 1964 (J. S. Buckett & M. R. Gardner), Bauer-Buckett slide No. 67C31-23.
Fig. 10. *F. februalis*, aedeagus. Data same as for fig. 9.

anteriorly, remainder clothed in white simple hairs; legs with femora clothed dorsally in blackish scales, ventrally clothed in elongate whitish hairs; tibiae and tarsi banded, black and white; primaries dorsally with ground color pale green; basal line geminate, terminally white; basal and transverse anterior areas of ground color; transverse anterior line represented costally as



Figs. 11-15, *Feralia februalis.*
Fig. 11. Mesal view of proleg, fifth instar larva, illustrating crochets.
Fig. 12. Mesal view of right mandible, fifth instar larva.
Fig. 13. Frontal view of head, fifth instar larva.
Fig. 14. Lateral view of head, fifth instar larva.
Fig. 15. Setal maps showing chaetotaxy of fith instar larva, lateral view. T1, T2 = Thoracic segments 1 and 2, respectively; A3, A7, A8, A9, A10 = Abdominal segments 3,7,8,9,10 respectively.

black wedge, weak from subcosta to cubutis, thence geminate, basally black, apically whitish; median area of ground color for most part, orbicular squared off, weakly outlined in black, thence white, centrally of ground color; median line irregular, black; reniform an open "figure 8," colored as in orbicular; transverse

posterior line very jagged, geminate, basally white, apically black, commencing on costa just basally of subterminal line, thence meandering onto lower portion of reniform, thence proceeding to inner margin where it intersects closer to tornus than to median line; tornus area with conspicuous black dash; subterminal line a black wedge on costa, thence diminishing and fading out in the vicinity of M_1; combined subterminal and terminal areas washed with whitish, therefore appearing very pale, or "washed out;" terminal line represented as black undulating line, dipping basally between veins, fringes checkered, black and pale green; ventral surface whitish, with slight trace of pale green; basal, transverse anterior, median, and subterminal lines represented costally in black, thence wanting; veins faintly outlined in brownish; terminal line and fringes as in dorsal surface, but paler; secondaries dorsally whitish, with slight suggestion of black exterior line; inner margin clothed in tan elongate hairs; terminal line as in primaries; fringes pale green; ventral surface possessing two faint transverse black lines; fringes as in dorsal surface. Abdomen dorsally clothed in brownish and tannish hairs, for most part, some very stout; terminally clothed in whitish and blackish simple and flattened hairs; laterally clothed in blackish hairs and scales; ventrally clothed in whitish simple hairs. Greatest expanse of forewing 16 mm. Genitalia as in figures 7 and 8.

Female: As in male, except antennae weakly fasciculate instead of being bipectinate. Judging by the single female at hand, this sex seems to be of lesser forewing expanse than in the male (this is not necessarily the case in *februalis,* though).

Specimens examined

Holotype male, Avalon Club House, Santa Catalina Island, California, 23 February 1933 (Don C. Meadows), U.S.N.M. type no 64645. Paratypes: 1 female, 13 males; 1 female (designated Allotype), same locality and collector as holotype, 10 February 1932; 13 males, same locality and collector as holotype, 12 November through 19 February, 1930 - 1933; all in United States National Museum except for a single male dated 8 January 1932, in Bauer-Buckett Collection, Davis, California.

Judging by the series of 15 specimens before me, the Santa Catalina Island species is more constant in color and in maculation than the mainland species, *februalis,* its closest relative. *F. meadowsi* differs from *F. februalis* superficially by its constant, drab, pale green coloration; pronounced black lunule, or dash of the tornus area on dorsal surface of primaries; constant

conspicuous black spot at anal angle of secondaries, dorsally.

The male genitalia of *meadowsi* are distinctly different from *februalis* in that *meadowsi* possesses a broader cucullus, much broader valvae, and broader ventral process of the terminal portion of the uncus. The aedeagus possesses considerably fewer spines on the vesical sac also. The female genitalia of *meadowsi* differ from *februalis* by the former possessing virtually no large setae on the ovipositor lobes, whereas *februalis* possesses many; *meadowsi* has a less sclerotized ductus bursae, and the genitalia on the whole is of lesser size than is *februalis*. The single female before me probably is representative of *meadowsi,* but it could be a teneral individual.

The immature stages of *Feralia februalis* have been briefly discussed (at least the fifth instar) by Crumb (1956); however, to my knowledge, the chaetotaxy of the fifth instar larva has not been described or illustrated. Crumb (op. cit.) states in his key to known speices of *Feralia* larvae that *februalis* "Feeds on broad-leaved trees." Under the description of *februalis* he cites as food plant "*Cercocarpus betuloides* and oak (*Quercus douglasi*)." The author has been successful in rearing this species on California Buckeye, *Aesculus californicus* (Spach) Nuttall, from eggs obtained from an adult female, and McFarland (Master's Thesis) cites *Sambucus, Cercocarpus* and *Quercus* as host plants for *februalis* in southern California.

Crumb described the general habitus of the fifth instar larva and therefore it will not be necessary to do so here. In the key as well as in the description, he stresses the presence of a "very decided subconical dorsal hump on 8." The eighth abdominal segment on my three preserved fifth instar larvae lacks this "subconical hump;" however, on a second instar larva there is a suggestion of this hump. Chaetotaxy of the pertinent thoracic and abdominal segments may be seen in fig. 15. Chaetotaxy of the head may be seen in both front and lateral views (as in figs. 13 and 14, respectively).

At this time, I would like to express my appreciation to Mr. Michael R. Gardner for preparing the illustrations of the larva of *februalis*. The genitalia slides were made using lignin pink stain and balsam as the mounting media.

LITERATURE CITED

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